SPECIFICATIONS

QUAD FREQUENCY SYNTHESIZER

INTRODUCTION:

NRL requires a phase-locked synthesizer capable of providing very low phase noise for a set of high-performance receivers. A fully coherent design is required to provide precise synthesis of four Local Oscillator (LO) frequencies needed for the second conversion mixers in two sets of receivers.

KEY REQUIREMENTS

a. The synthesizer shall create 12 total outputs for the NRL receiver LOs.
b. 6 outputs shall be identical at either 692.75 MHz or 769.25 MHz, depending on external TTL control.
c. 6 outputs shall be identical at either 1376.25 MHz or 1453.125 MHz, depending on external TTL control.
d. All output signals shall be derived from and phase locked to any of the reference signals at 10MHz, 20MHz, and 100MHz available from the NRL timing system.
e. Must be vibration tolerant and must not be susceptible to microphonic effects.
f. SMA female connectors, inputs on rear, outputs on front.
g. Control connector: DB 9 male, pinout to be supplied by vendor.
h. Packaging: 19 inch rack mount, 2U (3.5 inch) max height, 26 inch max depth, 30lb max weight.

Electrical Specifications:	**Minimum**	**Type**	**Maximum**	**Units**
Input Frequencies	9.9999	10.0000	10.0001	MHz
	19.9999	20.0000	20.0001	MHz
	99.9999	100.0000	100.0001	MHz
Input Power (CW)	Plus 9	Plus 10	Plus 15	dBm
Outputs: 6 each UHF, 6 each L-Band				
UHF Frequency 1 (see note 1)	--	692.75	--	MHz
UHF Frequency 2 (see note 1)	--	769.25	--	MHz
L-Band Frequency 1 (see note 1)	--	1376.25	--	MHz
L-Band Frequency 2 (see note 1)	--	1453.125	--	MHz
Output Power (Adjustable)	Plus 0	Plus 3	Plus 6	dB
Output Power Delta	--	0.3	0.7	dB
Output Spurious	--	minus 100	minus 90	dBc
Output Phase Noise Floor @ 100 KHz (see note 2)		minus 150	minus 140	dBc/Hz
VSWR:				
Inputs	--	--	1.8	:1
Outputs	--	--	1.8	:1
Supply Power	--	120	--	VAC
Supply Frequency	--	60	--	Hz
Power Dissipation	--	--	20	Watts

Note 1 - Frequency Selection Control TTL
Note 2 - Dependent on Input Noise Floor from Reference Oscillator

DELIVERY: The system shall be delivered no later than 31 August 2004